Responses to Data Requests 126 Through 129

Application for Certification (06-AFC-9)

for

COLUSA GENERATING STATION

Colusa County, California

September 14, 2007

Prepared for:

E&L Westcoast, LLC

Prepared by:

URS

COLUSA GENERATING STATION (06-AFC-9) DATA REQUESTS

Technical Area: Air Quality
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AIR QUALITY EMISSION OFFSETS

BACKGROUND

Staff is uncertain regarding the disposition of the Emission Reduction Credits (ERCs) that the applicant owns beyond those required to meet District and Energy Commission requirements as specified in the Preliminary Staff Assessment. The list of applicant ERCs in Appendix A of the Air Quality Section provides both VOC and PM_{10} ERCs in excess of those required by the District or currently recommended by staff. Additionally, staff is inquiring to the applicant's desire or intent to use its large amount of excess VOC ERCs to increase its proposed 1.4 to 1 VOC for NO_x interpollutant offset ratio, which was commented on by the Air Resources Board on June 8, 2007. Staff requests the following additional information to more thoroughly understand the disposition of all of the applicant's ERCs.

DATA REQUEST

126. Please identify how the applicant will use, sell, or otherwise dispose of the PM_{10} ERCs that are shown to be excess in PSA AIR QUALITY Table 30.

RESPONSE

See response to Data Request 127 which addresses both DR 126 and DR 127.

DATA REQUEST

127. Please identify if the applicant would be willing to use all or part of the VOC ERCs, as shown in Appendix A of the PSA Air Quality Section, that are shown to be excess in PSA AIR QUALITY Tables 28 and 29 to increase its proposed interpollutant offset ratio from the currently proposed 1.4 to 1.

RESPONSE

This response addresses both DR 126 and DR 127.

The applicant does not currently hold "excess" ERCs. In fact, the applicant does not currently own any of the ERCs identified in the AFC, but instead holds options to purchase the identified ERCs. In order to be able to present a complete offset package in the AFC, applicant began the process of entering into option agreements very early in the development process. At that time, the precise emission profile of the facility was still being developed. To ensure that applicant would have sufficient offsets under option to meet the needs of the project, applicant obtained option agreements for a quantity of offsets that was greater than the anticipated needs of the project. Now that the emission profile of the facility has been determined with more precision, it is the intention of the applicant to exercise options only for those ERCs necessary to meet the offset requirements of the project. Acquisition of the ERCs, through exercise of the options and payment of the purchase price, can only be accomplished at considerable expense. It would not be prudent from an economic standpoint for the applicant to acquire more ERCs than are needed to meet the offset requirements of the project. Furthermore, acquisition of more ERCs than are necessary to meet the offset requirements of the project would unnecessarily remove those ERCs from the market, which would be an unnecessary impediment to future growth in the region. Thus, applicant does not hold, and will not hold, "excess" ERCs. Applicant continues to believe that the offset package set forth in the AFC, including the proposed interpollutant offset ratio, meets all applicable offset requirements and fully mitigates the project's air quality impacts.

AIR DISPERSION MODELING IMPACTS

BACKGROUND

The air quality dispersion modeling indicates potentially significant construction $PM_{10}/PM_{2.5}$ impacts and potentially significant cumulative NO_2 impacts. These modeling analyses use overly conservative assumptions that can be refined. Staff needs the applicant to perform more refined construction and cumulative modeling runs to determine if there would in fact be a reasonable potential for potentially significant construction $PM_{10}/PM_{2.5}$ impacts and potentially significant cumulative NO_2 impacts.

DATA REQUEST

128. Please provide a refined construction $PM_{10}/PM_{2.5}$ modeling analysis using volume sources to model the fugitive dust emissions. This can be done either using the same parameters and locations as used for the equipment exhaust PM emissions or another number of volume sources can be distributed around the main construction working area of the project site. Please provide an electronic copy of the modeling input and output files with the response.

RESPONSE

The PM_{10} and $PM_{2.5}$ impacts of fugitive dust and the particulate matter fraction of the construction equipment combustion exhaust were predicted using the EPA-approved AERMOD dispersion model for the near-field. All fugitive and combustion sources were modeled as volume sources as requested in the data request. The combustion sources (Main 1 and Main 2) were placed in the center of each area as depicted in Figure 128-1. The fourteen (14) fugitive dust sources (FUGL1 through FUGL9 in Area 1 and FUGS1 through FUGS5 in Area 2) were randomly placed as shown in Figure 128- 1 throughout the large area and the small area, respectively. The release height of the fugitive sources were all set to 3 meters based on the averaged height between the maximum fugitive source height (6 meters) and the ground level (0 meters). Initial lateral dimension of the fugitive sources of 23.26 meters and was calculated based on length of side (50 meters) divided by 2.15. The initial vertical dimension of 2.79 meters and was calculated based on vertical dimension (6 meters) of source divided by 2.15. The source location and parameters are shown in Table 128-1.

The fugitive and construction combustion emissions are addressed in Table 128 -2. The maximum 24-hour and maximum annual averaged PM_{10} and $PM_{2.5}$ emissions were used for modeling analysis. The closest eight (8) residential sensitive receptors were used for the analysis. The residential sensitive receptors are identical to the receptors used for Colusa Generating Station Hazardous Air Pollutants (HAPs) modeling analysis. The location of the receptors is shown in Figure 128-2. The approximate distances between the receptors and the facility are in the range between 2.77 km and 5.47 km.

Table 128-3 shows the maximum model-predicted results. The PM_{10} results are reported using the highest first high (H1H) and the $PM_{2.5}$ results are reported using the highest eighth high (H8H) corresponding to the 97^{th} percentile used for this standard. The maximum predicted concentration was combined with the staff-recommended monitored background concentration. The combined total concentration does not exceed the PM_{10} National Ambient Air Quality Standards (NAAQS). The combined total concentration does not exceed either the $PM_{2.5}$ California Ambient Air Quality Standards (CAAQS) or the NAAQS.

Electronic copies of the modeling files are included in the folder labeled Attachment 128 -1 on the CD provided with this document.

Figure 128-1
Location of Fugitive and Combustion Volume Sources and Fence Line

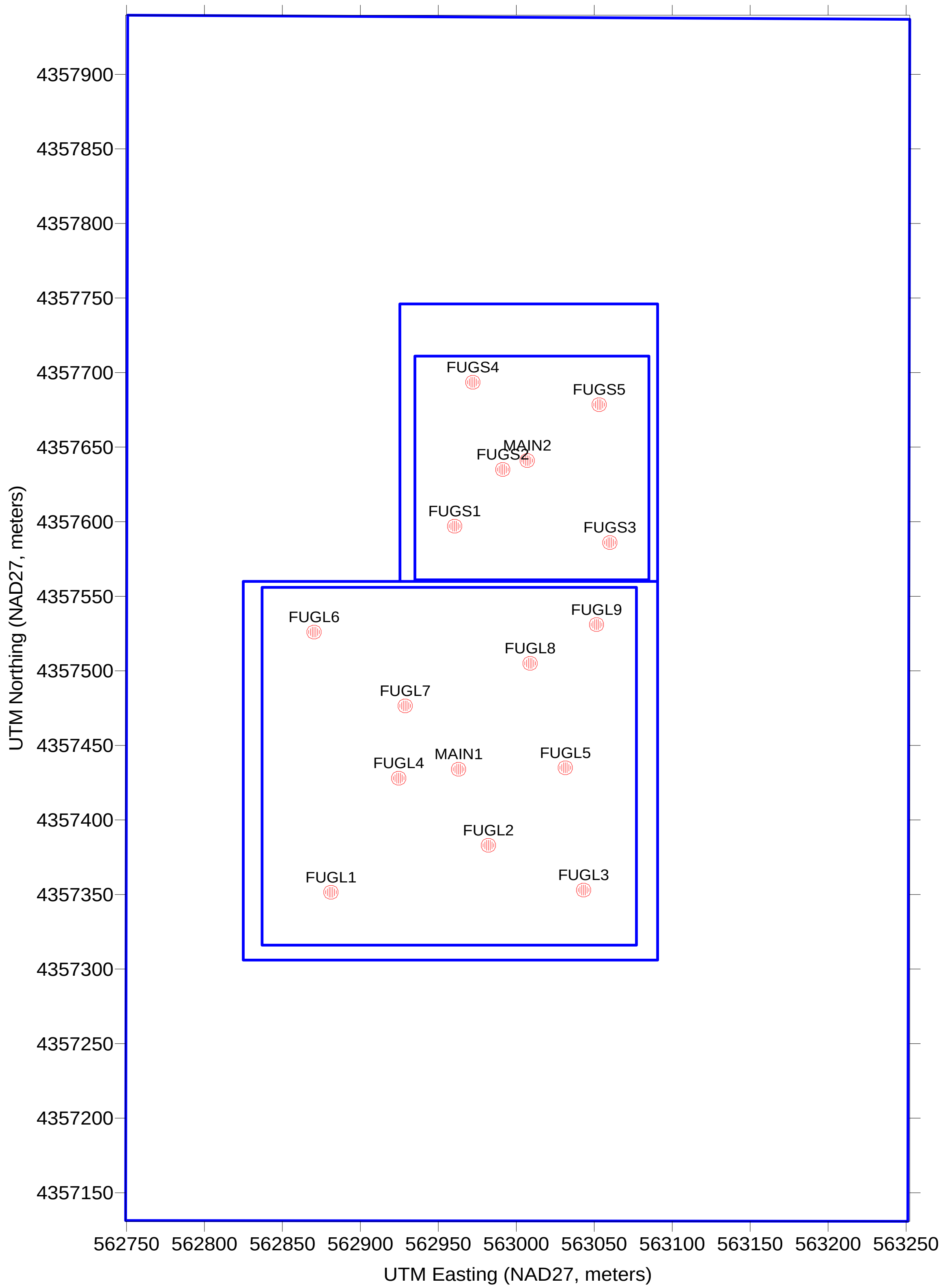

Figure 128-2
Residential Receptors

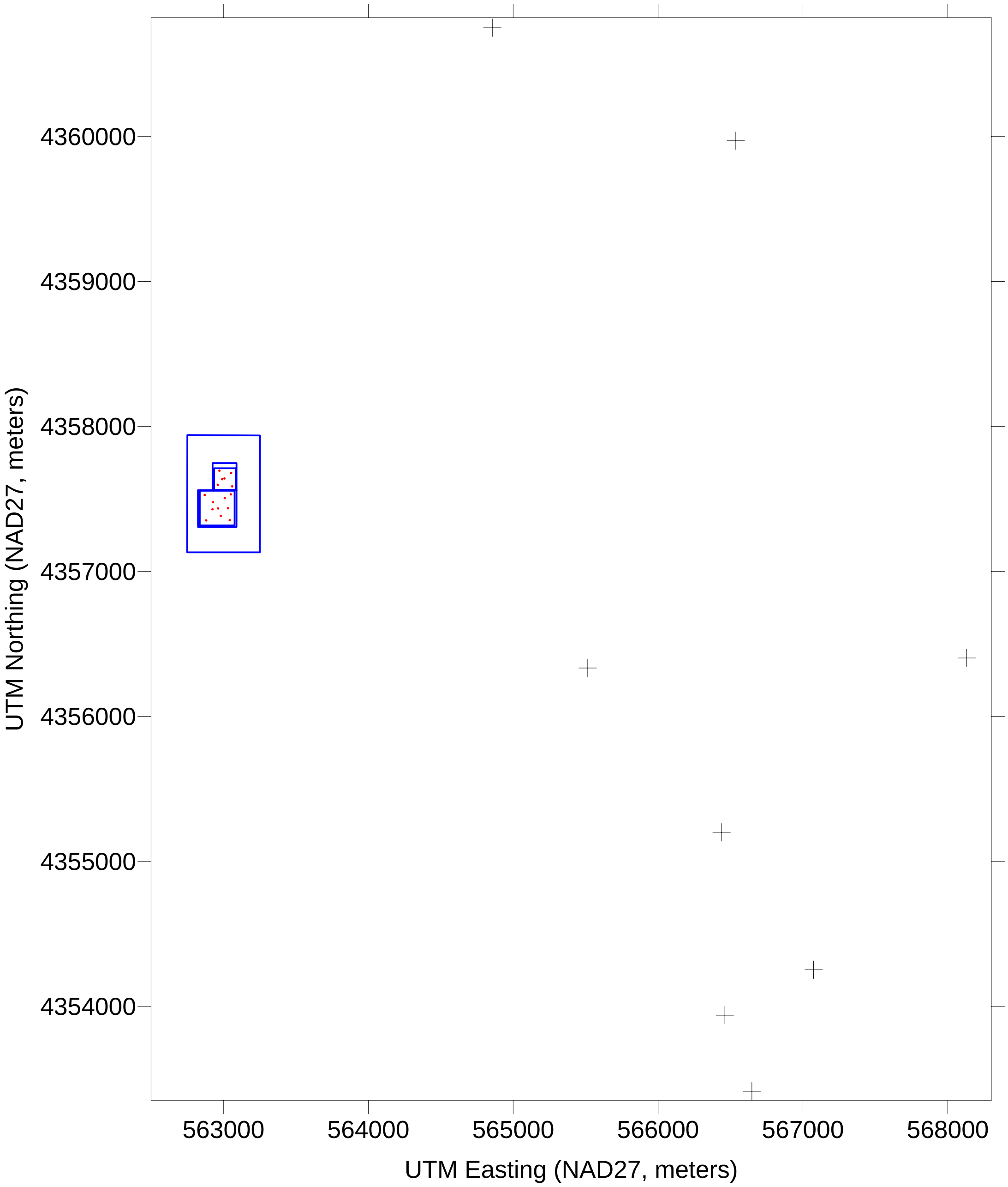

Table 128-1
Source Location and Parameters

Source Description	Source ID	UTM NAD27 Easting (m)	UTM NAD27 Northing (m)	Base Elevation (m)	Release Height (m)	Horizontal Dimension (m)	Vertical Dimension (m)
Construction Combustion	MAIN1	562963	4357434	56.09	10	58.14	2.33
	MAIN2	563007	4357641	56.83	10	37.21	2.33
Fugitive Sources	FUGL1	562881.1	4357352	55.72	3	23.26	2.79
	FUGL2	562982.1	4357383	56	3	23.26	2.79
	FUGL3	563043.1	4357353	57.8	3	23.26	2.79
	FUGL4	562924.6	4357428	60.07	3	23.26	2.79
	FUGL5	563031.4	4357435	61	3	23.26	2.79
	FUGL6	562870.3	4357526	56	3	23.26	2.79
	FUGL7	562928.8	4357477	56	3	23.26	2.79
	FUGL8	563008.9	4357505	57.03	3	23.26	2.79
	FUGL9	563051.4	4357531	58.77	3	23.26	2.79
	FUGS1	562960.4	4357597	58.24	3	23.26	2.79
	FUGS2	562991.3	4357635	56	3	23.26	2.79
	FUGS3	563060	4357586	54.33	3	23.26	2.79
	FUGS4	562972.1	4357694	59.33	3	23.26	2.79
	FUGS5	563053.1	4357679	56.53	3	23.26	2.79

Table 128-2
Maximum Emission Rates of Each Averaging Time Period

Source ID	24-hour PM_{10} (g/s)	Annual PM_{10} (g/s)	24-hour $PM_{2.5}$ (g/s)	Annual $PM_{2.5}$ (g/s)
MAIN1	0.146158	0.113398	0.144898	0.112138
MAIN2	0.059849	0.046619	0.059345	0.045359
FUGL1	0.137545	0.035832	0.028884	0.007525
FUGL2	0.137545	0.035832	0.028884	0.007525
FUGL3	0.137545	0.035832	0.028884	0.007525
FUGL4	0.137545	0.035832	0.028884	0.007525
FUGL5	0.137545	0.035832	0.028884	0.007525
FUGL6	0.137545	0.035832	0.028884	0.007525
FUGL7	0.137545	0.035832	0.028884	0.007525
FUGL8	0.137545	0.035832	0.028884	0.007525
FUGL9	0.137545	0.035832	0.028884	0.007525
FUGS1	0.137545	0.035832	0.028884	0.007525
FUGS2	0.137545	0.035832	0.028884	0.007525
FUGS3	0.137545	0.035832	0.028884	0.007525
FUGS4	0.137545	0.035832	0.028884	0.007525
FUGS5	0.137545	0.035832	0.028884	0.007525

Table 128-3
Maximum Model-Predicted Results

Pollutant	Averaging Time	2001 ($\mu g/m^3$)	2002 ($\mu g/m^3$)	2003 ($\mu g/m^3$)	2004 ($\mu g/m^3$)	2005 ($\mu g/m^3$)	Max ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total ($\mu g/m^3$)	Standards	
										CAAQS	NAAQS
PM_{10}	24-hour (H1H)	41.45	37.14	40.33	29.32	43.38	43.38	92.0	135.38	50	150
	Annual	0.77	0.82	0.71	0.77	0.87	0.87	25.5	26.37	20	50
$PM_{2.5}$	24-hour (H8H)	4.71	4.27	3.19	4.36	5.07	5.07	27.0	32.07	NA	35
	Annual	0.17	0.18	0.16	0.17	0.19	0.19	11.2	11.39	12	15

Note: Background concentrations are taken from PSA, Air Quality Table 10.

DATA REQUEST

129. Please provide a refined cumulative NO_2 modeling analysis that matches the hourly monitored NO_2 background, from a representative local ambient monitoring station, with the NOx_OLM dispersion modeling results for the same period modeled. With the response, please provide an electronic copy of any new modeling input and output files and an electronic copy of the hourly NO_2 background data that was obtained.

RESPONSE

The cumulative modeling analysis for NO_2 presented in the AFC was repeated. However, this time the 50 highest 1-hour results for years 2001 through 2005 were determined and the specific hour corresponding to each result was identified. As before, this analysis included the combined impacts from all three turbines at the existing Delevan Compressor Station (DCS) operating at full load, and the proposed Colusa Generating Station (CGS) undergoing simultaneous cold starts of both turbines plus full load operation of the auxiliary boiler. The individual 1-hour background NO_2 concentrations at the representative local ambient air monitoring station for years 2001 through 2005 were obtained from the California Air Resources Board. The specific hourly background concentration corresponding to the hour for each of the 50 highest modeled impacts was added to the modeled concentration. This methodology conservatively assumes that none of the emissions from the DCS contribute to the monitored background concentration. These results are presented in Table 129-1. All results are below the California Ambient Air Quality Standard (CAAQS).

Electronic copies of the modeling files and the hourly NO_2 data from ARB are included in the folder labeled Attachment 129-1 on the CD provided with this document.

Table 129-1
NO2 Cumulative Impact Results

*** THE MAXIMUM 50 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): TURB1S, TURB2S, AUXBOIL, K1, K2, K3
** CONC OF NO_2 IN MICROGRAMS/M^3 **
** CAAQS for NO_2 (1 hour) is 470 μg/m^3 **

Rank	Concentration (μg/m^3)	YYMMDDHH	Background Concentration (PPM)*	Background Concentration (μg/m^3)	Total Concentration (μg/m^3)	Exceeds CAAQS ? (Y/N)
1	345.27	02042506	0.019	35.73	380.99	no
2	341.42	03101321	0.022	41.37	382.79	no
3	332.80	02100818	0.067	125.98	458.79	no
4	321.88	02101919	0.064	120.34	442.23	no
5	319.90	02101919	0.064	120.34	440.25	no
6	317.31	05052920	0.013	24.44	341.76	no
7	314.52	01092121	0.025	47.01	361.53	no
8	314.26	04021918	0.02	37.61	351.87	no
9	312.88	04021918	0.02	37.61	350.49	no
10	312.17	02051322	0.008	15.04	327.21	no
11	309.82	03092119	0.066	124.10	433.92	no
12	306.34	02052905	0.011	20.68	327.02	no
13	305.96	01081521	0.023	43.25	349.21	no
14	305.62	04021918	0.008	15.04	320.67	no
15	305.00	04022018	0.031	58.29	363.29	no
16	302.71	05102119	0.047	88.38	391.09	no
17	302.65	01031819	0.037	69.57	372.22	no
18	301.30	01091503	0.011	20.68	321.98	no
19	300.90	05072023	0.008	15.04	315.94	no
20	300.87	03072303	0.013	24.44	325.31	no
21	300.87	03072603	0.006	11.28	312.15	no
22	295.31	03072304	0.014	26.33	321.64	no
23	295.31	03072604	0.009	16.92	312.23	no
24	295.09	04022018	0.027	50.77	345.86	no
25	293.94	04021918	0.02	37.61	331.55	no
26	292.04	04022018	0.027	50.77	342.81	no
27	291.85	04022018	0.027	50.77	342.62	no

Table 129-1
NO2 Cumulative Impact Results

*** THE MAXIMUM 50 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): TURB1S, TURB2S, AUXBOIL, K1, K2, K3
** CONC OF NO_2 IN MICROGRAMS/M^3 **
** CAAQS for NO_2 (1 hour) is 470 $\mu g/m^3$ **

Rank	Concentration ($\mu g/m^3$)	YYMMDDHH	Background Concentration (PPM)*	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	Exceeds CAAQS ? (Y/N)
28	289.86	01081420	0.009	16.92	306.79	no
29	288.32	04021918	0.02	37.61	325.93	no
30	287.01	01121118	0.034	63.93	350.94	no
31	286.25	04012607	0.022	41.37	327.61	no
32	286.16	01091606	0.008	15.04	301.20	no
33	285.91	04022018	0.027	50.77	336.68	no
34	285.48	03100322	0.013	24.44	309.93	no
35	285.19	01122118	0.034	63.93	349.12	no
36	284.97	02101919	0.064	120.34	405.32	no
37	284.82	01070121	0.034	63.93	348.75	no
38	284.55	02122408	0.019	35.73	320.27	no
39	284.39	01092004	0.026	48.89	333.28	no
40	284.11	04021919	0.016	30.09	314.20	no
41	283.98	01081620	0.011	20.68	304.67	no
42	283.66	04021919	0.016	30.09	313.75	no
43	283.62	01092302	0.023	43.25	326.87	no
44	283.31	05072023	0.008	15.04	298.35	no
45	283.07	04022018	0.027	50.77	333.84	no
46	282.96	04021918	0.02	37.61	320.56	no
47	282.88	02052905	0.011	20.68	303.57	no
48	282.81	05022407	0.01	18.80	301.62	no
49	282.36	04072122	0.01	18.80	301.16	no
50	282.24	02101918	0.064	120.34	402.58	no

Notes:
* Background data for the specific hour is not available. Closest available data is taken to represent the specific background concentration.
** Background concentration is converted by multiplying the PPM concentration with an emission factor of 1880.37 ($\mu g/m^3$)/PPM for NO_2.